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NALCO PATENT DEPT.

Case No. 5593

(To be completed by Patent Dept.)

### Invention Disclosure and Approval Form

1. A. Research Group: *Mining and Mineral Processing Chemicals*  
B. Charge Code: *5187*

*Subject of the Invention: Prism Polymers for Laterite Nickel/Cobalt Rheology Modification Applications.*

*Detailed Description of the Invention: The use of Prism Polymer 9762 has demonstrated an enhanced performance when used as a viscosity modifier for applications in the merging Laterite Nickel and Cobalt High Pressure, Acid Leach Market. This chemistry has given equivalent reduction in Yield Stress, Shear Stress, and Apparent Viscosity at 0.4 to 0.5 replacement ratios as compared to existing Freevis viscosity modifiers used primarily in Australia and the Pacific. In addition to the enhanced performance observed on two of the laterite nickel ore slurries provided by Murrin Murrin and Nonoc Nickel Mines in Western Australia and the Philippines, respectively, the Prism polymer has also demonstrated similar improved performance when it was used in the Calcrete, (a lime substitute used for neutralization reactions in the laterite nickel process), slurry applications as a rheology modifier. The Murrin Murrin laterite ore slurry was increased to 35% solids, and when treated with 150 g/t of 9762, it gave the desired decrease in viscosity back to the 31% solids level. For data on the Nonoc laterite ore and the Calcrete slurry, please see the attached graphs. Additionally, the Prism products will be evaluated for their contributions in the areas of scale control and crystal modification in laterite nickel applications.*

3. *Advantages of the Invention and Benefits to Nalco if a Patent is Obtained. This invention will allow Nalco to provide the desired performance level at approximately one half of the cost of product. This cost position will allow Nalco to maintain higher margins while being better positioned to compete in this very competitive merging market. See attached results from the laterite nickel/cobalt and Calcrete ore slurries.*

4. *List other possible applications both within and outside of Nalco for this invention. List PAC and Industry codes if known. This invention could also be used to compete in existing Freevis accounts in the areas of gold, copper, taconite, Mineral Sands, coal, bauxite and phosphate in Ball Mills, Cyclones, Thickener Underflow, and Feed Thickener applications.*

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OFFICE OF PETITIONS

5. Are you aware of any other disclosures related to this invention? Yes, the Prism products are covered by Composition of Matter Patents within Nalco. We are unaware of any additional disclosures related to this invention.

6. Attach a copy of your literature search and a copy of any pertinent literature reference which relates to your invention. There is no reference in the literature that relates to this invention. SEE ATTACHED LIT SEARCH (SLIFINDER). NO REFERENCES WERE FOUND USING THE SEARCH STRATEGY EMPLOYED.

7. State the extent of use of this invention. This invention has been evaluated in the field as a potential rheology modifier in laboratory quantities only. It has not been offered for sale.

8. Technical Director Name: Wayne M. Carlson

Approved

Initials

Date

Please Indicate Groups that might use this Invention:

Paper

Industrial:

Specialty:

Process:

Mining

See Nalco Case 4553  
(US 5,183,211)  
May be relevant.

9. **Inventor(s) Signatures.**

Authorization Under 35 USC 111 and  
Under 37 Code of Federal Regulations, Article 1.41

I (we), the undersigned inventor(s) of the above described invention, authorize any attorney employed by Nalco Chemical Company or an officer of Nalco Chemical Company to file on my (our) behalf any application(s) corresponding to the invention described in this form pursuant to 35 USC 111 and 37 Code of Federal Regulations, Article 1.41.

**Full name of sole or first inventor (print or type):** E. Michael Kerr

**Inventor's Signature:** E. Michael Kerr

**Date:** \_\_\_\_\_

**Country of Citizenship:** USA

**Social Security No.:** 256-74-2390

**Residence** 2950 Juniper Court Aurora, Illinois 60504

**Name of Witness (print or type):** Mary A. Pettus

**Signature of Witness:** Mary A. Pettus

**Full name of second inventor (print or type):** Sana Khan

**Inventor's Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Country of Citizenship:** \_\_\_\_\_

**Social Security No.:** \_\_\_\_\_

**Residence** 93 Kingsgrove Road South Belmore, NSW, Australia 2192

**Name of Witness (print or type):** \_\_\_\_\_

**Signature of Witness:** \_\_\_\_\_

**Full name of third inventor (print or type):** Cathy C. Johnson

**Inventor's Signature:** Cathy C. Johnson

**Date:** \_\_\_\_\_

**Country of Citizenship:** USA

**Social Security No.:** 336-68-0660

**Residence** 27 School Street, Geneva, IL 60134

**Name of Witness (print or type):** Angela P. Zagala

**Signature of Witness:** Angela P. Zagala

**Full name of fourth inventor (print or type):** Chris Mann

**Inventor's Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Country of Citizenship:** Canada

**Social Security No.:** \_\_\_\_\_

**Residence** \_\_\_\_\_

**Name of Witness (print or type):** \_\_\_\_\_

**Signature of Witness:** \_\_\_\_\_

**Full name of fifth inventor (print or type):** \_\_\_\_\_

**Inventor's Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Country of Citizenship:** \_\_\_\_\_

**Social Security No.:** \_\_\_\_\_

**Residence** \_\_\_\_\_

**Name of Witness (print or type):** \_\_\_\_\_

**Signature of Witness:** \_\_\_\_\_



